



CASE REPORT

Missed stabbed heart in an infant

A.B. van As^{a,*}, J.G. Brink^b^a *Division of Paediatric Surgery, Red Cross War Memorial Children's Hospital, Rondebosch, 7701 Cape Town, South Africa*^b *Division of Cardio-Thoracic Surgery, Red Cross and Groote Schuur Hospitals, Department of Surgery University of Cape Town, Cape Town, South Africa*

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Case report

An 11-month-old infant was admitted to a local hospital after an alleged assault with a knife. The child was crying but haemodynamically stable. On examination a 2 cm long laceration was noted over the left shoulder, through the deltoid muscle. The wound was sutured with nylon 3.0, after which the child was discharged. However, the child was brought back to the hospital by its mother after 2 days with the history that the left arm was underutilized and the child distressed when the arm was passively moved. Anteroposterior and lateral radiographs of the thorax revealed a large knife blade retained in the left chest. The blade was situated subcutaneously under the sutured wound on the left shoulder with the tip directed towards the cardiac region (see [Figs. 1 and 2](#)). A left sided chest drain was inserted and the patient was transferred to our trauma unit.

The child was prepared for theatre, intravenous antibiotics were administered and an emergency left thoracotomy was performed. The blade was identified within the chest and the whole tract visualized before it was removed. The tip of the blade penetrated the pericardium and was located in the myocardium (see [Figs. 3 and 4](#)). The pericardium was opened widely and there was little intra

pericardial blood present and no bleeding from the wound in the left ventricular myocardium, which had been penetrated tangentially to a maximum depth of about 1 cm.

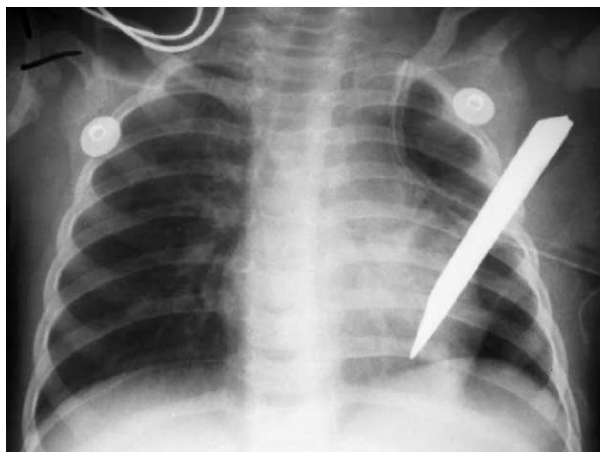
No bleeding occurred when the blade was carefully pulled from the myocardium in a reverse direction and removed from the chest via the thoracotomy. The pericardium was partially re-approximated and an intrathoracic drain was positioned and the chest was closed in layers. To complete the procedure, the shoulder joint was washed out with normal saline. The postoperative course was uncomplicated.

Discussion

We present a very young patient with a retained knife blade, which penetrated a shoulder joint, thorax and the pericardium; a case of a missed stabbed heart. All stab wounds to the chest should be regarded, as potentially lethal and proper investigations are mandatory. This particular injury would not have been missed if an initial chest radiograph had been taken.

Cardiac trauma in small children is rare; the majority of cases are due to blunt injuries.⁴ In a recent large overview of 1198 patients, the average age was 30 years, the youngest patient 5-year-old.¹ Penetrating injuries to the heart are exceptionally rare in children, with sporadic case reports in the literature.²

* Corresponding author. Tel.: +27 21 6585012;
fax: +27 21 6856632.
E-mail address: abvanas@ich.uct.ac.za (A.B. van As).

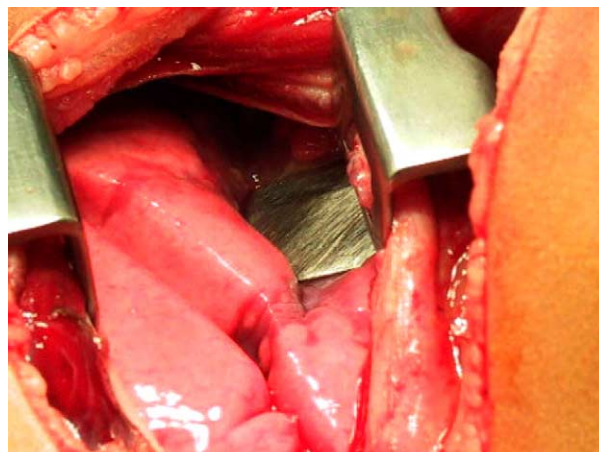


Figures 1 and 2 The anteroposterior and lateral thoracic radiographs. The position of the retained blade is easily recognized.

The diagnosis of a stabbed heart can be notoriously difficult, even in adults. In children the diagnosis is even more difficult and the recommended diagnostic pathway includes echocardiography, pericardiocentesis, subxyphoid window and explorative thoracotomy. Because of the potential lethal complications, most authors agree that penetrating foreign bodies should only be removed in an operating theatre, under general anesthesia and in a controlled environment. What these exactly include varies. Some advocate blind removal of the foreign body with equipment and personnel on site in case the patient decompensates.² Others advocate an open thoracotomy and a heart–lung machine on stand-by.³ Whatever the preferred method, there can be little doubt that these cases need expertise and referral to a specialist center which is advocated in all cases.

Conclusion

Penetrating cardiac injuries in childhood are extremely rare. However, stab wounds near but remote to



Figures 3 and 4 Pictures taken during the left-sided thoracotomy. The blade can be identified within the chest with its tip within the myocardium.

the chest wall should always raise the suspicion that possible cardiac trauma could be present, not only in adults, but also in younger patients. A chest radiograph is a mandatory investigation in all cases of penetrating injury in the chest region.

References

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